Multiple Choice

____ 1. Which linear system has the solution $x = -2$ and $y = 6$?

a. $x + 3y = 16$
$4x + 4y = 16$

b. $x + 3y = 17$
$2x + y = 15$

c. $x + 2y = -2$
$2x + 4y = -4$

d. $2x + y = -2$
$x + y = 16$

____ 2. Which linear system has the solution $x = 4$ and $y = -2$?

a. $x + 4y = 15$
$4x - 2y = -17$

b. $2x + 4y = 4$
$-2x + y = 14$

c. $4x + y = 14$
$-2x + 4y = -16$

d. $x + 4y = 4$
$2x + 4y = 8$

____ 3. Create a linear system to model this situation:
The perimeter of an isosceles triangle is 36 cm. The base of the triangle is 9 cm longer than each equal side.

a. $s + b = 36$
$b - 9 = s$

b. $2s + b = 36$
$b + 9 = s$

c. $2b + s = 36$
$s + 9 = b$

d. $2s + b = 36$
$s + 9 = b$

____ 4. Create a linear system to model this situation: A collection of nickels and dimes contains four times as many dimes as nickels. The total value of the collection is $20.25.

a. $d = 4n$
$5n + 10d = 2025$

b. $d = 4n$
$5d + 10n = 2025$

c. $n = 4d$
$5n + 10d = 2025$

d. $d + n = 15$
$5n + 10d = 2025$

____ 5. Create a linear system to model this situation:
In a board game, Judy scored 3 points more than twice the number of points Ann scored.
There was a total of 39 points scored.

a. $j = 3 + 2a$
$j + a = 39$

b. $j - 3 = 2a$
$j + 2a = 39$

c. $j + 3 = 2a$
$j + a = 39$

d. $a = 3 + 2j$
$j + a = 39$

____ 6. Create a linear system to model this situation:
A woman is 3 times as old as her son. In thirteen years, she will be 2 times as old as her son will be.

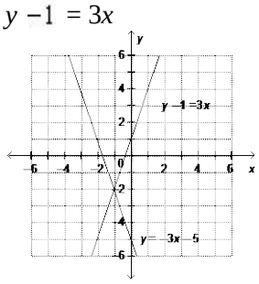
a. $w = s + 3$
$w + 13 = 2s$

b. $w = 3s$
$w + 13 = 2(s + 13)$

c. $w = 3s$
$w = 2s$

d. $w = 3s$
$s + 13 = 2(w + 13)$

____ 7. Use the graph to solve the linear system:
$y = -3x - 5$
$y - 1 = 3x$



a. (1, –2)
b. (–1, 0)
c. (1, 0)
d. (–1, –2)

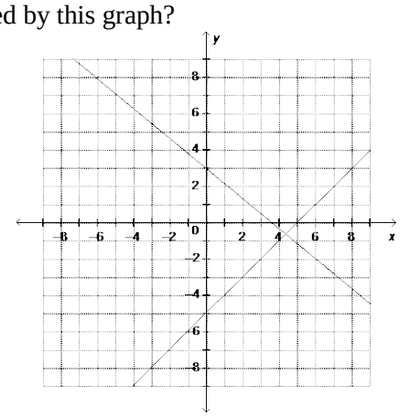
____ 8. Which linear system is represented by this graph?

a) $x - y = 5$
$5x + 6y = 18$

b) $x - y = 7$
$5x + 6y = 18$

c) $x - y = 9$
$6x + 6y = 18$

d) $x - y = 11$
$6x + 5y = 18$



a. System d
b. System b
c. System a
d. System c

____ 9. Express each equation in slope-intercept form.
$-2x + 4y = 68$
$13x + 4y = 284$

a. $y = \frac{1}{2}x - 17$
$y = -\frac{13}{4}x - 71$

b. $y = -\frac{284}{13}x + 17$
$y = -\frac{13}{4}x + \frac{4}{13}$

c. $y = \frac{1}{2}x + 17$
$y = -\frac{13}{4}x + 71$

d. $y = \frac{4}{13}x - \frac{284}{13}$
$y = \frac{1}{2}x - \frac{284}{13}$

____ 10. Use substitution to solve this linear system.
$y = \frac{118}{5} - \frac{3}{5}x$
$13x + 5y = 178$

a. (6, –20) b. (6, 20) c. (–6, –20) d. (–6, 20)

____ 11. Use substitution to solve this linear system.
$x = 2y - 56$
$5x + 13y = 410$

a. (4, –30) b. (–4, 30) c. (4, 30) d. (–4, –30)

____ 12. Identify two like terms and state how they are related.
$-10x + 20y = 460$
$30x + 60y = 1620$

a. $-10x$ and $30x$; by a factor of –3
b. $-10x$ and $20y$; by a factor of –2
c. $30x$ and $60y$; by a factor of 2
d. $-10x$ and 460; by a factor of –46

____ 13. Use substitution to solve this linear system.
$x = 4 + y$
$4x + 16y = -264$

a. (–14, –14) b. (–10, –10) c. (–10, –14) d. (–14, –10)

____ 14. Use substitution to solve this problem: The perimeter of a rectangular field is 276 m. The length is 18 m longer than the width. What are the dimensions of the field?

a. 58 m by 80 m b. 68 m by 70 m c. 78 m by 60 m d. 48 m by 90 m

____ 15. Use substitution to solve this linear system:
$x - y = 18$
$\frac{3}{4}x + \frac{3}{4}y = -\frac{15}{2}$

a. $x = 4; y = 18$ b. $x = -14; y = -14$ c. $x = 4; y = -14$ d. $x = 4; y = 4$

____ 16. For each equation, identify a number you could multiply each term by to ensure that the coefficients of the variables and the constant term are integers.
(1) $\frac{5}{4}x + \frac{1}{6}y = \frac{47}{12}$
(2) $\frac{4}{5}x - \frac{6}{7}y = 16$

a. Multiply equation (1) by 35; multiply equation (2) by 12.
b. Multiply equation (1) by 12; multiply equation (2) by 35.
c. Multiply equation (1) by 2; multiply equation (2) by 3.
d. Multiply equation (1) by 3; multiply equation (2) by 2.

____ 17. Write an equivalent system with integer coefficients.

$\frac{3}{7}x + 3y = \frac{438}{7}$

$\frac{5}{6}x + 5y = \frac{310}{3}$

a. $3x + 21y = 438$
$5x + 30y = 620$

b. $21x + 3y = 438$
$5x + 30y = 620$

c. $3x + 21y = 438$
$30x + 5y = 620$

d. $3x + 21y = 1$
$5x + 30y = 1$

____ 18. The solution of this linear system is $(-3, y)$. Determine the value of y.

$x - 3y = -33$

$\frac{6}{7}x - y = -\frac{88}{7}$

a. 20 b. 30 c. 10 d. 40

____ 19. For each equation, choose a divisor that is an integer. Then create an equivalent linear system by dividing each term of the equation by the divisor.

$12x - 8y = 1480$

$20x + 65y = 1370$

a. $x - 3y = 370$
$x + 13y = 274$

b. $2x - 3y = 370$
$4x + 13y = 274$

c. $3x - 2y = 370$
$4x + 13y = 274$

d. $3x - y = 370$
$4x + y = 274$

____ 20. Use an elimination strategy to solve this linear system.

$4x - 3y = 10$

$2x + 5y = 18$

a. $x = 14$ and $y = 2$

b. $x = \frac{37}{7}$ and $y = \frac{26}{7}$

c. $x = 4$ and $y = 2$

d. $x = 2$ and $y = 4$

____ 21. Use an elimination strategy to solve this linear system.

$3x - 2y = 5$

$2x + 7y = 20$

a. $x = 3$ and $y = -2$

b. $x = \frac{1}{5}$ and $y = \frac{14}{5}$

c. $x = 3$ and $y = 2$

d. $x = -3$ and $y = -2$

____ 22. Write an equivalent linear system where both equations have the same y-coefficients.

$4x + 4y = 7$

$8x + 7y = 11$

a. $4x + 4y = 7$ and $8x + 4y = 11$

b. $28x + 28y = 49$ and $32x + 28y = 44$

c. $11x + 28y = 28$ and $11x + 7y = 11$

d. $28x + 31y = 49$ and $32x + 31y = 44$

____ 23. Use an elimination strategy to solve this linear system.

$\frac{2}{3}m + \frac{3}{4}n = 16$

$-\frac{1}{2}m + \frac{3}{8}n = 18$

a. $m = -12$ and $n = 32$

b. $m = \frac{201}{10}$ and $n = \frac{52}{15}$

c. $m = 12$ and $n = -32$

d. $m = -12$ and $n = \frac{32}{3}$

____ 24. Model this situation with a linear system:
Frieda has a 13% silver alloy and a 31% silver alloy. Frieda wants to make 26 kg of an alloy that is 47% silver.

a. $s + t = 0.47$ and $0.13s + 0.31t = 26$

b. $s + t = 47$ and $0.13s + 0.31t = 26$

c. $s + t = 26$ and $0.13s + 0.31t = 0.47$

d. $s + t = 26$ and $0.13s + 0.31t = 12.22$

____ 25. Use an elimination strategy to solve this linear system.

$20x - 24y = -52$

$8x + 32y = 104$

a. $x = -1$ and $y = -3$

b. $x = 3$ and $y = 1$

c. $x = 1$ and $y = -3$

d. $x = 1$ and $y = 3$

____ 26. Without graphing, determine the slope of the graph of the equation:
$3x + 4y = 11$

a. $\frac{3}{4}$ b. $-\frac{3}{4}$ c. 4 d. 3

____ 27. Without graphing, determine which of these equations represent parallel lines.
i) $-6x + 6y = 12$
ii) $-4x + 6y = 12$
iii) $-2x + 6y = 12$
iv) $-6x + 6y = 14$

a. ii and iii b. i and ii c. i and iv d. i and iii

____ 28. Determine the number of solutions of the linear system:
$2x - 5y = 23$
$-6x + 15y = 21$

a. one solution
b. no solution
c. two solutions
d. infinite solutions

____ 29. Determine the number of solutions of the linear system:
$14x - 5y = 123$
$14x - 5y = 73$

a. no solution
b. infinite solutions
c. two solutions
d. one solution

____ 30. Determine the number of solutions of the linear system:
$14x + 7y = 315$
$16x - 2y = 610$

a. no solution
b. one solution
c. two solutions
d. infinite solutions

____ 31. Determine the number of solutions of the linear system:
$5x + 7y = 76$
$-25x - 35y = -380$

a. 2 solutions
b. one solution
c. infinite solutions
d. no solution

____ 32. Two lines in a linear system have the same slope, but different *y*-intercepts.
How many solutions does the linear system have?

a. two solutions
b. no solution
c. infinite solutions
d. one solution

____ 33. For what value of *k* does the linear system below have infinite solutions?
$\frac{4}{5}x + y = 14$
$kx + 2y = 28$

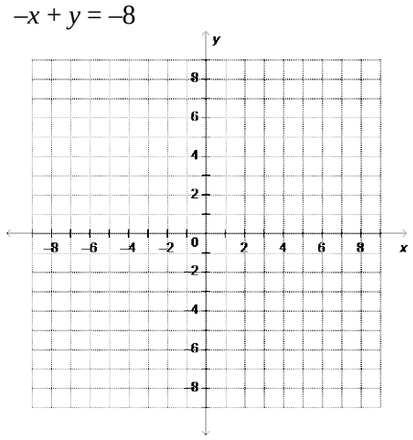
a. 28 b. $\frac{4}{5}$ c. $\frac{8}{5}$ d. 0

Short Answer

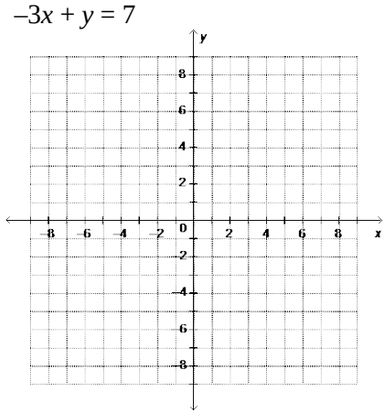
34. Create a linear system to model this situation:
A sack of wheat costs $10.75 and a sack of oats costs $12.75. If the total cost was $778.75 and 65 sacks were ordered, how many sacks of each grain were purchased?
Verify that 25 sacks of wheat and 40 sacks of oats represent the solution of the linear system.

35. Create a linear system to model this situation:
Two ships start sailing towards each other at the same time from two islands that are 365 km apart. One ship travels 5 km/h faster than the other. They meet in 5 h. What is the average speed of each ship?
Verify that 34 km/h and 39 km/h represent the solution of the linear system.

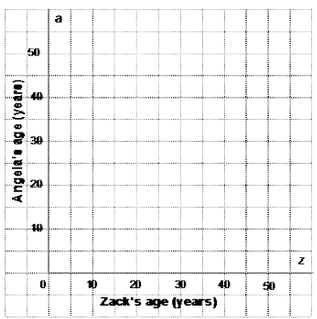
36. Solve this linear system by graphing.
$-3x - 2y = 16$
$-x + y = -8$



37. Solve this linear system by graphing.
$y = -8$
$-3x + y = 7$



38. **a)** Write a linear system to model this situation:
Angela is 24 years older than her cousin Zack. In 13 years, she will be double his age.
b) Use a graph to solve this problem:
How old are Angela and Zack now?



39. Use graphing technology to solve this linear system.
Where necessary, write the coordinates to the nearest tenth.
$-3x - 5y = 12$
$-x + y = -10$

40. Use graphing technology to solve this linear system.
Where necessary, write the coordinates to the nearest tenth.
$-3x + 4y = -3$
$5x + 6y = -5$

41. Use substitution to solve this linear system:
$8x + y = -458$
$-5x + 3y = 221$

42. Use substitution to solve this linear system:
$x + \frac{7}{8}y = -34$
$-3x + 4y = -4$

43. Create a linear system to model this situation. Then use substitution to solve the linear system to solve the problem.

At the local fair, the admission fee is $8.00 for an adult and $4.50 for a youth. One Saturday, 209 admissions were purchased, with total receipts of $1304.50. How many adult admissions and how many youth admissions were purchased?

44. Use an elimination strategy to solve this linear system.
$10x + 10y = 1030$
$5x - 5y = 135$

45. Use an elimination strategy to solve this linear system.
$12c + 28d = 12$
$-20c + 16d = 168$

46. Use an elimination strategy to solve this linear system.
$-24m + 20n = 292$
$36m - 16n = -284$

47. Model this situation with a linear system:
A recycling depot pays 0.06¢ for a small can and 0.23¢ for a large can. Chara took 70 cans to the recycling depot and her total refund was $22.35.

48. Model this situation with a linear system:
The perimeter of a rectangle is 234 ft. When its length is doubled, the perimeter increases by 58 ft.

49. Determine the number of solutions of this linear system.
$7x - 3y = 43$
$7x - 3y = 13$

50. Determine the number of solutions of this linear system.
$15x + 30y = -240$
$17x + 21y = 53$

Problem

51. In a piggy bank, the number of nickels is 8 more than one-half the number of quarters. The value of the coins is $21.85.
a) Create a linear system to model the situation.
b) If the number of quarters is 78, determine the number of nickels.

52. **a)** Write a linear system to model the situation:
A sports club charges an initiation fee and a monthly fee. At the end of 5 months, a member had paid a total of $450. At the end of 10 months, she had paid a total of $500.

b) Solve the linear system by substitution to solve the related problem:
What are the initiation fee and the monthly fee?

53. **a)** Write a linear system to model the situation:
For the school play, the cost of one adult ticket is $6 and the cost of one student ticket is $4. Twice as many student tickets as adult tickets were sold. The total receipts were $2016.
b) Use substitution to solve the related problem:
How many of each type of ticket were sold?

54. Use an elimination strategy to solve this linear system. Verify the solution.
$4x + 6y = 0$
$2x + 10y = 14$

55. Use an elimination strategy to solve this linear system. Verify the solution.
$20x + 35y = 705$
$10x - 5y = 195$

56. Cashew nuts sell for $21.00/kg. Brazil nuts sell for $15.00/kg. A distributor sold a total of 120 kg of cashew nuts and Brazil nuts for $2244. What mass of each type of nut was sold?

57. Use an elimination strategy to solve this linear system. Verify the solution.
$2s - 2c = 10$
$6s + 6c = 50$

58. Explain what happens when you try to solve this linear system using an elimination strategy. What does this tell you about the graphs of these equations?
$-8x + 20y = -40$
$24x - 60y = 120$

Answer - MULTIPLE CHOICE

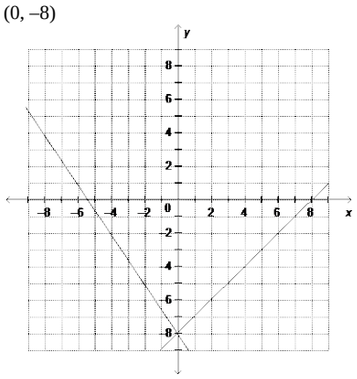
1. ANS: A
2. ANS: C
3. ANS: D
4. ANS: A
5. ANS: A
6. ANS: B
7. ANS: D
8. ANS: C
9. ANS: C
10. ANS: B
11. ANS: C
12. ANS: A
13. ANS: C
14. ANS: C
15. ANS: C
16. ANS: B
17. ANS: A
18. ANS: C
19. ANS: C
20. ANS: C
21. ANS: C
22. ANS: B
23. ANS: A
24. ANS: D
25. ANS: D
26. ANS: B
27. ANS: C
28. ANS: B
29. ANS: A
30. ANS: B
31. ANS: C
32. ANS: B
33. ANS: C

SHORT ANSWER

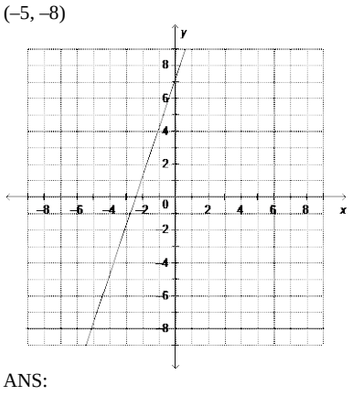
34. ANS:
Let *w* represent the number of sacks of wheat and *o* represent the number of sacks of oats.
A linear system is:
$w + o = 65$
$10.75w + 12.75o = 778.75$
Since $w = 25$ and $o = 40$ satisfy each equation, these numbers are the solution of the linear system.

35. ANS:
Let *x* represent the speed of the slower ship and *y* represent the speed of the faster ship.
A linear system is:
$x + 5 = y$
$5x + 5y = 365$
Since $x = 34$ and $y = 39$ satisfy each equation, these numbers are the solution of the linear system.

36. ANS:
(0, –8)



37. ANS:
(–5, –8)



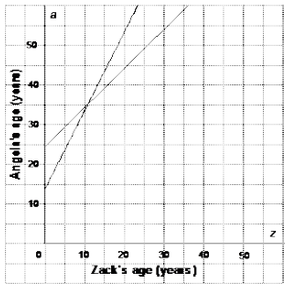
38. ANS:

a)

$a = z + 24$
$a + 13 = 2(z + 13)$

b)

Zack is approximately 11 years old and Angela is approximately 35 years old.



39. ANS: (4.8, –5.3)

40. ANS: (–0.1, –0.8)

41. ANS: $x = -55$; $y = -18$

42. ANS: $x = -20$; $y = -16$

43. ANS:
Let a represent the number of adult admissions, and y represent the number of youth admissions purchased.
$a + y = 209$
$8a + 4.5y = 1304.5$
104 adult admissions and 105 youth admissions were purchased.

44. ANS: $x = 65; y = 38$

45. ANS: $c = -6; d = 3$

46. ANS: $m = -3; n = 11$

47. ANS:
$s + l = 70$
$0.06s + 0.23l = 22.35$

48. ANS:
$2l + 2w = 234$
$4l + 2w = 292$

49. ANS: No solutions

50. ANS: One solution

PROBLEM

51. ANS:

a) Let n represent the number of nickels and q represent the number of quarters.

$n = \frac{1}{2}q + 8$

$0.05n + 0.25q = 21.85$

b) To determine the number of nickels when the number of quarters is 78:
Substitute $q = 78$ in one of the equations in part a, then use the other equation to verify.

$n = \frac{1}{2}q + 8$

$n = \frac{1}{2}(78) + 8$

$n = 39 + 8$
$n = 47$
The number of nickels is 47.

To verify, substitute $q = 78$ and $n = 47$ into $0.05n + 0.25q = 21.85$.
L.S. $= 0.05n + 0.25q$

= 0.05(47) + 0.25(78)
= 2.35 + 19.5
= 21.85

R.S. = 21.85

Since the left side equals the right side, the number of nickels in the collection must be 47.

52. ANS:

a) Let f dollars represent the initiation fee, and m dollars represent the monthly fee.
The cost after 5 months was \$450.
So, the first equation is:
$f + 5m = 450$

The cost after 10 months was \$500.
So, the second equation is:
$f + 10m = 500$

The linear system is:
$f + 5m = 450$ (1)
$f + 10m = 500$ (2)

b) Solve for f in equation (1).
$f + 5m = 450$ (1)
$f = 450 - 5m$

Substitute $f = 450 - 5m$ in equation (2).
$f + 10m = 500$ (2)
$450 - 5m + 10m = 500$
$5m = 500 - 450$
$m = \frac{50}{5}$
$m = 10$
Substitute $m = 10$ in equation (1).
$f + 5m = 450$ (1)
$f + 5(10) = 450$
$f + 50 = 450$
$f = 450 - 50$
$f = 400$
The initiation fee is \$400 and the monthly fee is \$10.

53. ANS:

a) Let a represent the number of adult tickets sold, and s represent the number of student tickets sold.
There were twice as many student tickets as adult tickets.
The first equation is:
$2a = s$
The total receipts were \$2016.
The second equation is:
$6a + 4s = 2016$
The linear system is:
$2a = s$ (1)
$6a + 4s = 2016$ (2)

b) Solve for s in equation (1).
$2a = s$ (1)
$s = 2a$
Substitute $s = 2a$ in equation (2).
$6a + 4s = 2016$ (2)
$6a + 4(2a) = 2016$
$6a + 8a = 2016$
$14a = 2016$
$a = \frac{2016}{14}$
$a = 144$
Substitute $a = 144$ in equation (1).
$2a = s$ (1)
$2(144) = s$
$288 = s$
144 adult tickets and 288 student tickets were sold.

54. ANS:

$4x + 6y = 0$ ①
$2x + 10y = 14$ ②

Multiply equation , by 2, then subtract to eliminate x.
2 × equation ②: $2(2x + 10y = 14)$
$4x + 20y = 28$ ③

Subtract equation f from equation ①.

$$\begin{array}{r} 4x + 6y = 0 \quad ① \\ \underline{-(4x + 20y = 28)} \quad ③ \\ -14y = -28 \end{array}$$

$y = 2$

Substitute $y = 2$ in equation ①.

$4x + 6y = 0$ ①

$4x + 6(2) = 0$

$4x + 12 = 0$

$4x = -12$

$x = -3$

Verify the solution.
In each equation, substitute: $x = -3$ and $y = 2$

$4x + 6y = 0$ ①

L.S. $= 4x + 6y$

$= 4(-3) + 6(2)$

$= -12 + 12$

$= 0$

$= \text{R.S.}$

$2x + 10y = 14$ ②

L.S. $= 2x + 10y$

$= 2(-3) + 10(2)$

$= -6 + 20$

$= 14$

$= \text{R.S.}$

For each equation, the left side is equal to the right side, so the solution is: $x = -3$ and $y = 2$

55. ANS:

$20x + 35y = 705$ ①

$10x - 5y = 195$ ②

Multiply equation ② by 7, then add to eliminate *y*.
7 × equation ②: $7(10x - 5y = 195)$

$70x - 35y = 1365$ ③

Add:

$$\begin{array}{rr} 20x + 35y = 705 & ① \\ +\ 70x - 35y = 1365 & \\ \hline 90x \quad = 2070 & ③ \end{array}$$

$x = 23$

Substitute $x = 23$ in equation ①.

①

$20x + 35y = 705$

$20(23) + 35y = 705$

$460 + 35y = 705$

$35y = 245$

$y = 7$

Verify the solution.
In each equation, substitute: $x = 23$ and $y = 7$

$20x + 35y = 705$ ①

L.S. $= 20x + 35y$

$= 20(23) + 35(7)$

$= 460 + 245$

$= 705$

$= \text{R.S.}$

$10x - 5y = 195$ ②

L.S. $= 10x - 5y$

$= 10(23) - 5(7)$

$= 230 - 35$

$= 195$

$= \text{R.S.}$

For each equation, the left side is equal to the right side, so the solution is: $x = 23$ and $y = 7$

56. ANS:
Let *c* kg represent the mass of cashew nuts sold and let *b* kg represent the mass of Brazil nuts sold.

The 120 kg of nuts is the sum of *c* kg of cashew nuts and *b* kg of Brazil nuts.
So, the first equation is: $c + b = 120$

The total cost of $2244 is the sum of *c* kg of cashew nuts at $21.00/kg and *b* kg of Brazil nuts at $15.00/kg. So, the second equation is:
$21c + 15b = 2244$

The linear system is:
$c + b = 120$ ①
$21c + 15b = 2244$ ②

Each term in equation ② is divisible by 3. So, remove the common factor.

$(21c + 15b = 2244) \div 3 \longrightarrow 7c + 5b = 748$ ③

Multiply equation ① by 5, then subtract to eliminate *b*.
5 × equation ①: $5(c + b = 120)$

$$5c + 5b = 600 \quad ④$$

Subtract equation ④ from equation ③.

$$\begin{array}{r} 7c + 5b = 748 \\ -(5c + 5b = 600) \\ \hline 2c \quad = 148 \end{array}$$

$$c = 74$$

Substitute $c = 74$ in equation ①.

$$c + b = 120 \quad ①$$

$$74 + b = 120$$

$$b = 46$$

So, 74 kg of cashew nuts and 46 kg of Brazil nuts were sold.

To verify the solution, use the given data.
A total of 120 kg of nuts were sold; and 74 kg + 46 kg = 120 kg.
74 kg of cashew nuts were sold, so the cost of the cashew nuts is:
74($21.00) = $1554
46 kg of Brazil nuts were sold, so the cost of the Brazil nuts is:
46($15.00) = $690
The total cost of the cashew nuts and the Brazil nuts is:
$1554 + $690 = $2244, which matches the total cost in the problem.
So, 74 kg of cashew nuts and 46 kg of Brazil nuts were sold.

57. ANS:

$$2s - 2c = 10 \quad ①$$
$$6s + 6c = 50 \quad ②$$

Multiply equation ① by 3, then add to eliminate *c*.
3 × equation ①: $3(2s - 2c = 10)$

$$6s - 6c = 30 \quad ③$$

Add:

$$\begin{array}{rl} & 6s - 6c = 30 \quad ③ \\ + & 6s + 6c = 50 \quad ② \\ \hline & 12s \quad = 80 \end{array}$$

$$s = \frac{80}{12}$$

$$s = \frac{20}{3}$$

Substitute $s = \frac{20}{3}$ in equation ①.

$$2s - 2c = 10$$
$$2\left(\frac{20}{3}\right) - 2c = 10$$
$$\frac{40}{3} - 2c = 10$$
$$-2c = 10 - \frac{40}{3}$$
$$-2c = \frac{30}{3} - \frac{40}{3}$$
$$-2c = -\frac{10}{3}$$
$$c = \frac{10}{6}$$
$$c = \frac{5}{3}$$

Verify the solution.

In each equation, substitute: $s = \frac{20}{3}$ and $c = \frac{5}{3}$

$2s - 2c = 10$

$$\begin{aligned}\text{L.S.} &= 2s - 2c \\ &= 2\left(\frac{20}{3}\right) - 2\left(\frac{5}{3}\right) \\ &= \frac{40}{3} - \frac{10}{3} \\ &= \frac{30}{3} \\ &= 10 \\ &= \text{R.S.}\end{aligned}$$

$6s + 6c = 50$

$$\begin{aligned}\text{L.S.} &= 6s + 6c \\ &= 6\left(\frac{20}{3}\right) + 6\left(\frac{5}{3}\right) \\ &= 40 + 10 \\ &= 50 \\ &= \text{R.S.}\end{aligned}$$

For each equation, the left side is equal to the right side, so the solution is: $s = \frac{20}{3}$ and $c = \frac{5}{3}$

58. ANS:

$-8x + 20y = -40$ ①

$24x - 60y = 120$ ②

Eliminate *x* first.

Multiply equation ① by 3, then add.

3 × equation ①: $-24x + 60y = -120$

$$\underline{+(24x - 60y = 120)}$$

$$0 = 0$$

When I try to eliminate one variable, I eliminate the other variable and the constant term, so the equations must be equivalent. This indicates that the graphs of these equations are coincident lines. So, the linear system has infinite solutions.